# Whiskey Rapids Trail

## Algonquin River Ecology

# Whiskey Rapids Trail

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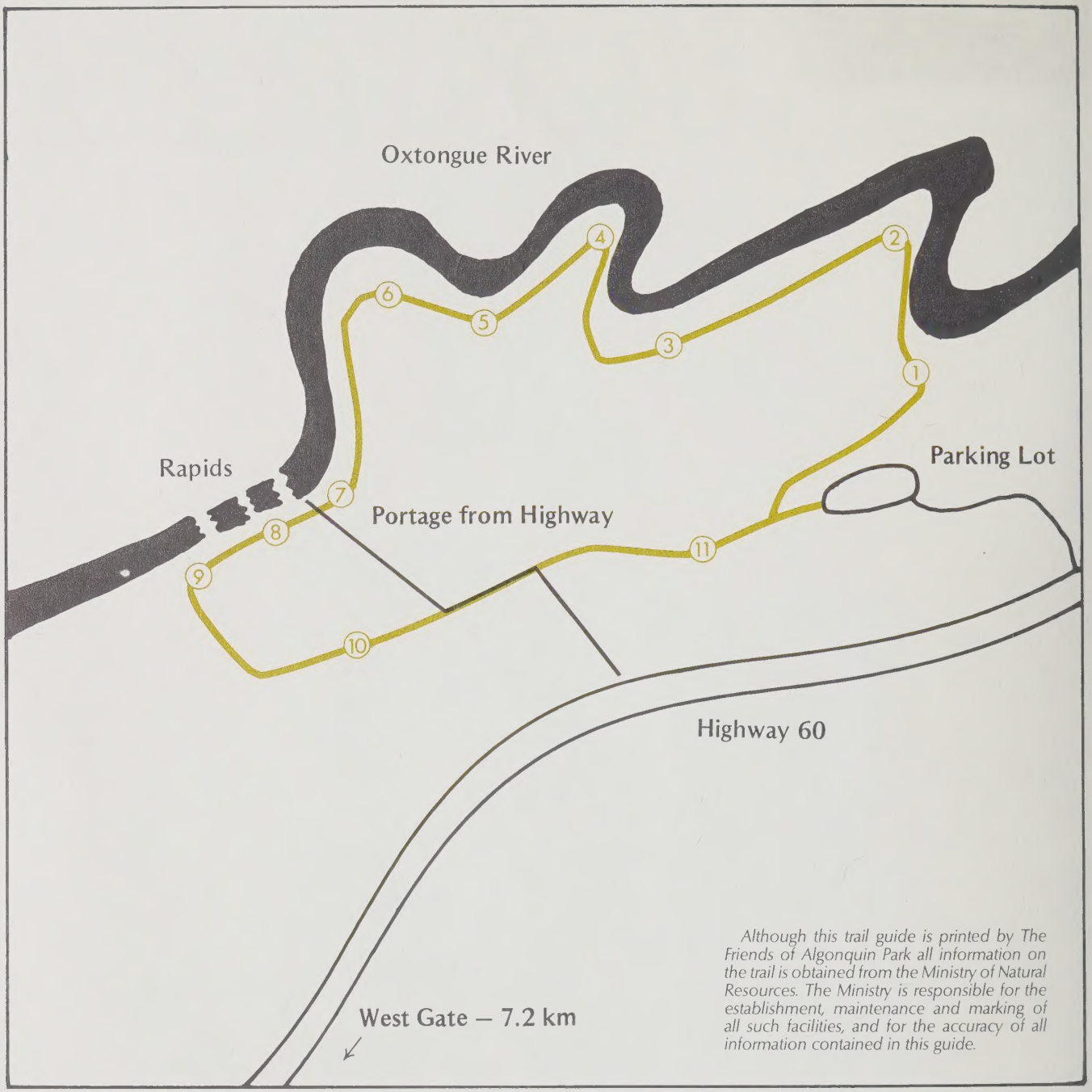


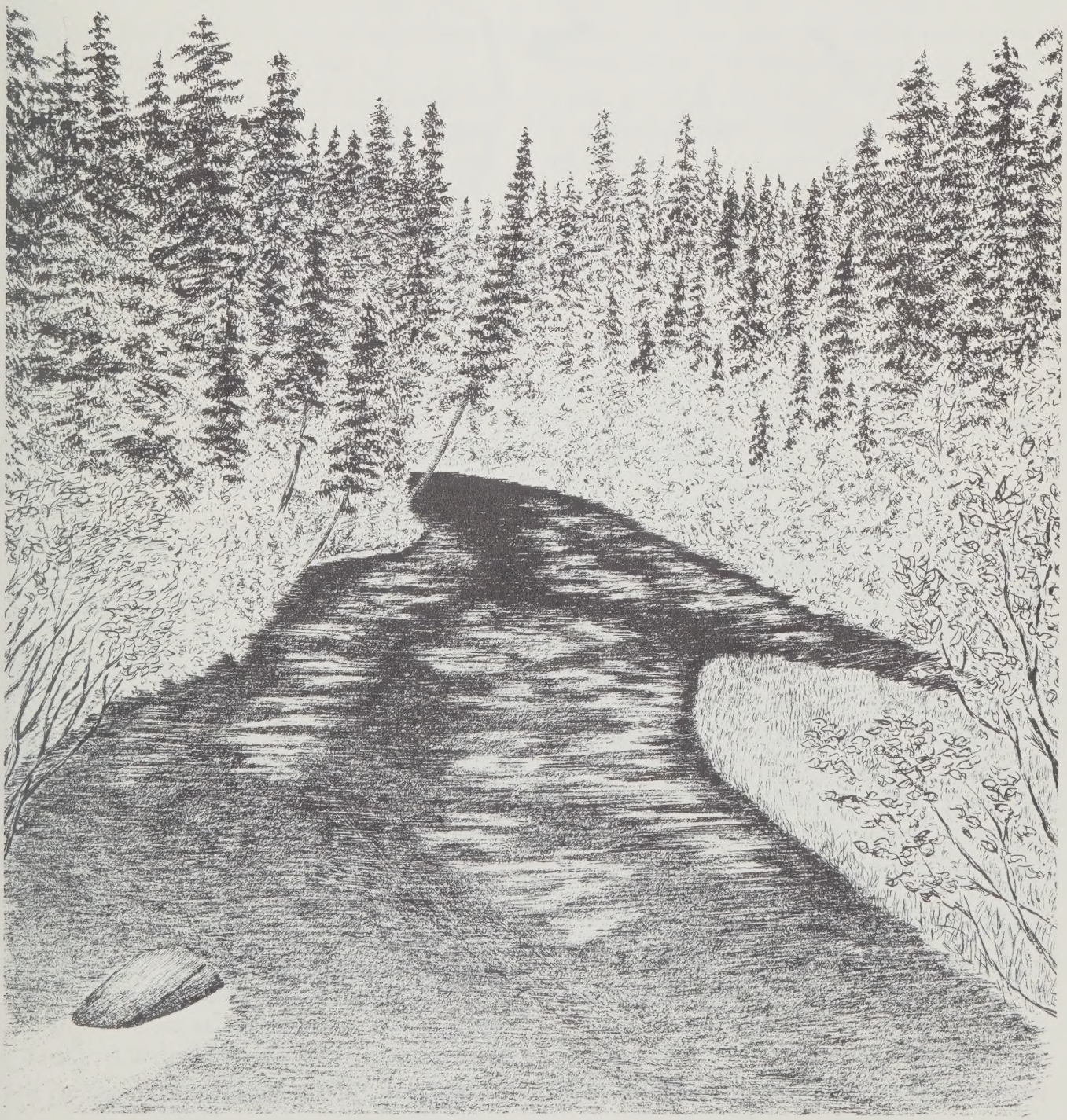

The Whiskey Rapids Trail is a 2.1 km loop starting on Highway 60, 7.2 km from the West Gate of Algonquin. For about half its length, the trail follows the Oxtongue River and culminates in a fine view of the picturesque Whiskey Rapids.

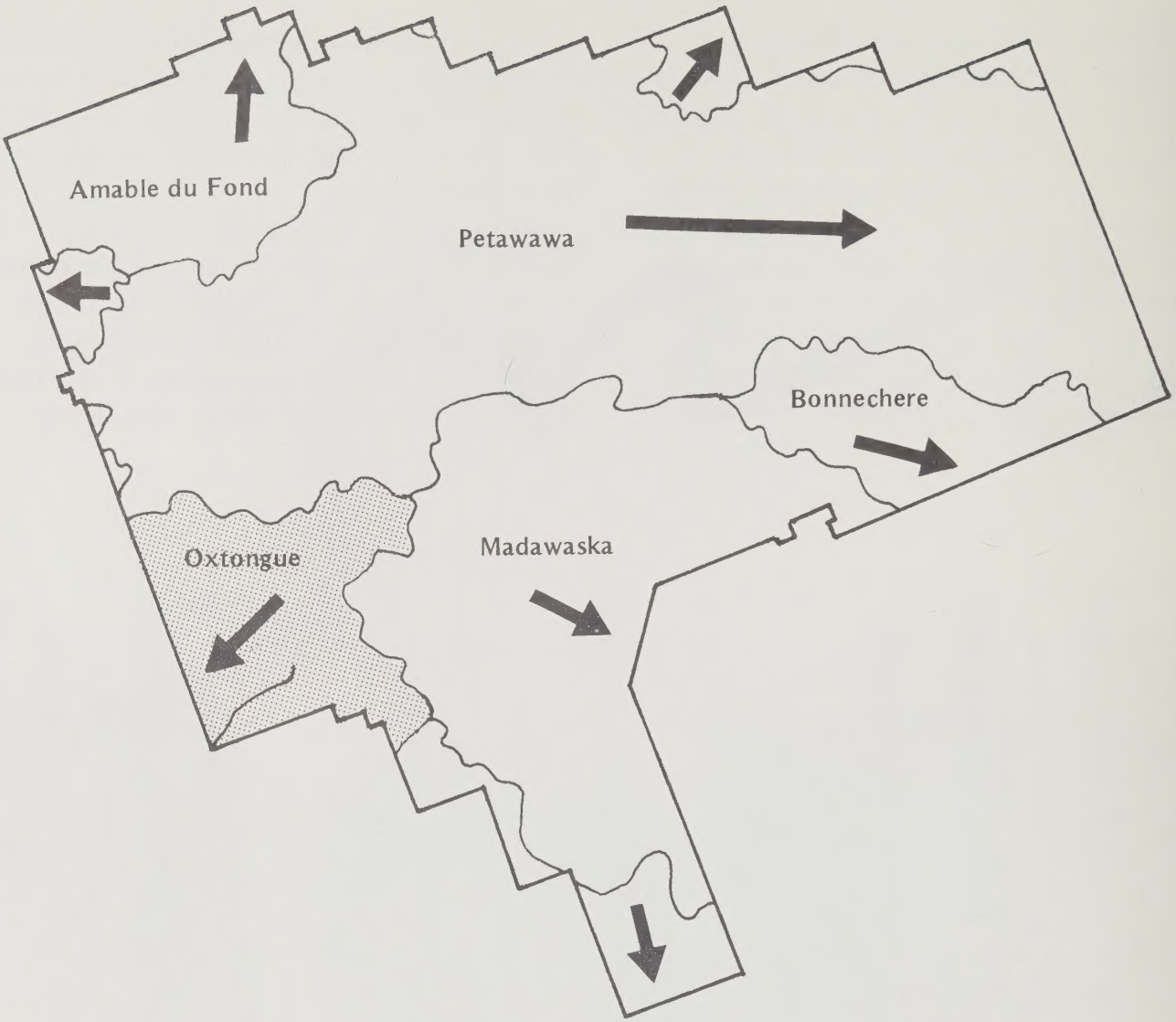
The numbered sections of this guide, corresponding to numbered posts along the trail, discuss the role of rivers in the natural and human history of Algonquin Park. Enjoy your walk.

# Post 1 Flow Gently, Sweet Oxtongue

You are now standing above a quiet stretch of the Oxtongue River. Today, it is hard to realize that this placid stream was a huge, thundering river at its birth, 11,000 years ago. That was when the last glacier, two km thick, finally melted back from Algonquin. This valley carried away staggering quantities of icy melt-water and, with it, millions of tonnes of sand and gravel released from the ice. The mighty river raged on for a century or two but eventually the ice was gone and the torrential flow was reduced to almost nothing — the quiet stream you see today, meandering its way through the sandy bed left by its giant ancestor.

But, even if it is now just a relative trickle, the Oxtongue is still of fundamental importance in Algonquin Park. It and seven other major rivers have their headwaters in the rugged Algonquin dome, the highlands of the park's west side, where






The principal watersheds of Algonquin including that of the Oxtongue River (gray).

elevations reach as high as 585 metres above sea level. For much of their existence these rivers have served as major travel routes for us humans – first for the Indians, then for white trappers, then for the loggers (who also used them to float their timbers to the outside world) and finally for today's canoeists. The rivers can even be thought of as the reason Algonquin Park was established, back in 1893. At the time, settlers were clearing the land in Ontario at a tremendous rate and there was great concern about the forests in the Algonquin highlands since those forests regulate the flow in the eight rivers which have their source here. The creation of Algonquin Park removed this concern and today the Park's great forests continue to perform their important role of water conservation. Modern dams, replacing those built by the loggers, also regulate the flow. The flow in the Oxtongue, for example, is evened out as much as possible over the year through the use of three dams upstream from here at the outlets of Tea, Burnt Island and Ragged Lakes. Downstream the regulated flow is used to generate electric power in the Muskoka region.

But there is much more to Algonquin rivers than this. Much of the Park's human history was played out along their banks and they support a fascinating and unique set of plants and animals as well. At the posts farther along the trail we'll find out more.

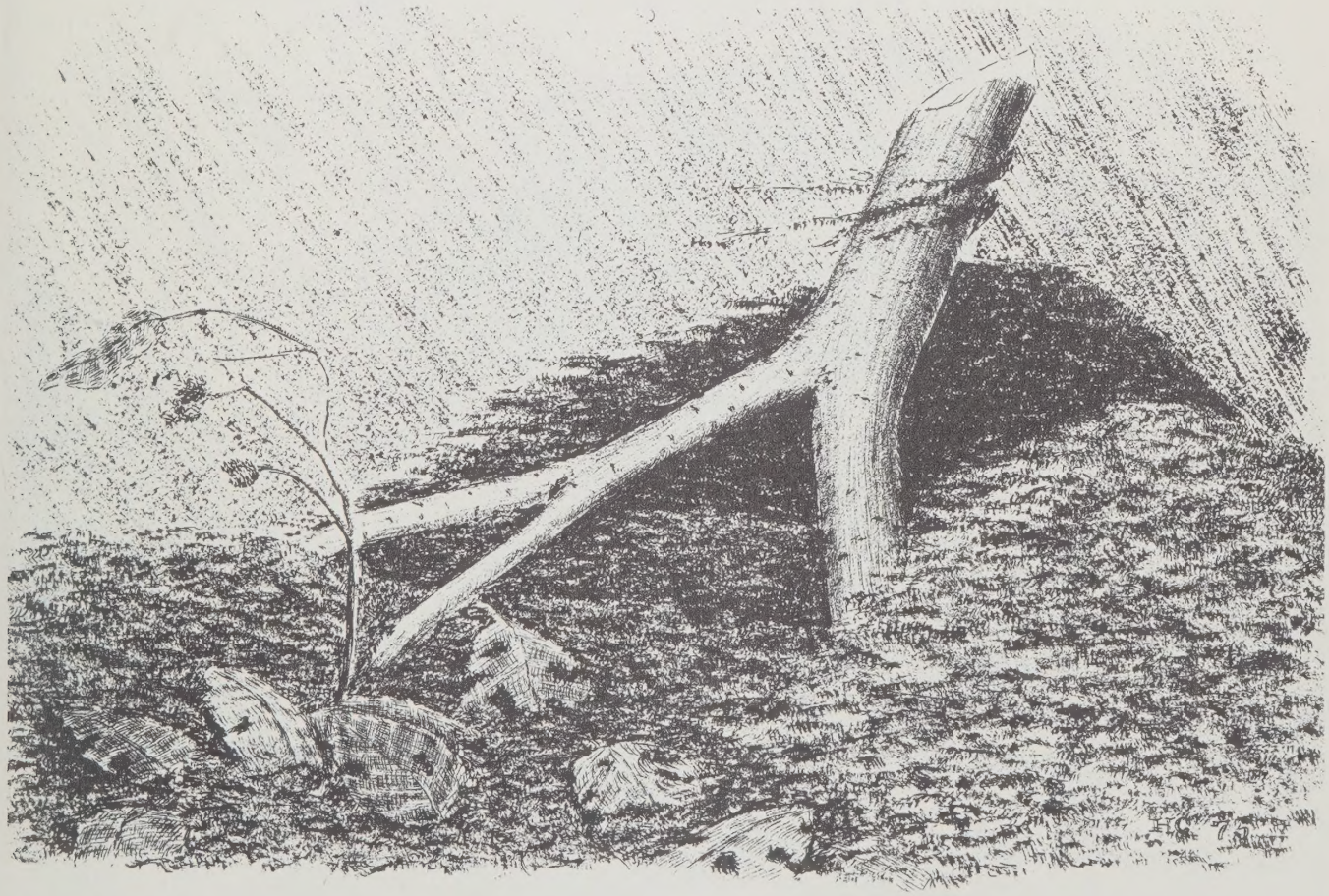
# Post 2 What's for Lunch?

Everyone knows that all animals eat plants, directly or indirectly. So, because there are almost no water plants in sight, you might think that the river – here, at least – must be a poor place for animals. As a matter of fact, the river is extremely rich in three types of plant food but all of them are very hard to see.

One broad type of food in the river is the tiny bits of dead plants, bacteria and algae that have been dislodged from upstream and are being swept along in the current. As you will see at Post 4, animals which make a living by capturing such food when it sweeps by are extremely common and much more familiar (unfortunately) than you might like.

The second main type of food available in the river consists of plant debris lodged on the bottom – mainly fragments of the millions of leaves that fall into the river each autumn. The most important of all are the leaves of Speckled Alder, a small tree commonly found along the banks of Algonquin rivers and streams – including just to your left. Alder leaves are four times richer in nitrogen than leaves of other trees and, since nitrogen is needed by all plants and animals (including us humans) to make proteins, the addition of alder leaves to the river bottom is especially enriching.

The last type of food in the river is the layer of slime that covers the rocks, dead branches, mud, and just about every other underwater surface. A microscope would show us that the "slime" really consists of algae, tiny green plants made up of only one or very few cells. There are dozens or even hundreds of different kinds of these algae, growing in different places according to differences in light, temperature, type of surface, and speed of current. They are extremely important to all other living things in the river and, even if we can't see the individual algae plants with our own



The "slimy" coating of algae on all submerged objects in the river is a rich grazing ground.

A microscopic view of some of the algae to be found in the Oxtongue River.

eyes, it is still interesting to consider the problems and benefits that come from living in flowing water.

The current, of course, is a major problem for a tiny, one celled plant, and all stream algae must have some means to stay put. Some kinds stick to rocks or plants with a kind of jelly, others anchor themselves with tiny "rootlets", and still others can actually creep over mud surfaces. The rewards for hanging on against the current are bigger than you might think. Algae get the nutrients (including nitrogen, phosphorus and potassium) they need for growth from the water that surrounds them. Unlike algae growing in a stagnant pond, for example the kinds that grow anchored to a surface in a rushing stream have their surrounding water constantly renewed by the stream, which brings in new supplies of nutrients. So, the faster the current, the richer the water is for the algae – provided they don't get swept away!

# Post 3 Miniature Cows

Because the supply of algae and plant fragments on the river bottom is so rich, it will come as no surprise that the animals which crop this food are extremely numerous and varied. In fact there are so many kinds that we cannot do more in this space than mention a few of the major groups. By far the most important of the grazing river animals are insect larvae—those of mayflies, stoneflies, caddisflies, and midges being the most notable.

Each of the hundreds of species which can be found in the Oxtongue River has its own habits and life history. Some (especially the midges and some of the mayflies) burrow in sandy or muddy areas, while others (particularly the stoneflies) live in rocky areas. Many of the caddisflies construct elaborate protective cases of sand and small stones.

All of them must move about in order to feed on algae and stationary plant debris, which means they can't avoid the current by permanently attaching themselves to a surface as many of the algae do. Other tricks must be employed. Some are streamlined, and some have flattened shapes with friction pads on their undersurfaces helping them to cling tightly to rocks. The most common trick, however, is simply avoiding the current by living in places where the current is weak or nonexistent—in burrows, in dead water behind obstructions, or on the undersides of stones. A few seem to brave the full force of even quite strong currents by venturing out on top of rocks, but actually such animals are so small that they are in a quiet


A few of the insect larvae that graze the river bottom.

"boundary layer" of water in the millimetre or two next to the rock where the current is slowed down by friction. All these insect larvae emerge into the air when they reach adulthood, but most are poor fliers. This is just as well because they can't afford to fly very far from their native stream. Many of them do not eat any food, and die within a few days after they have mated and laid their eggs. Their brief fling in the air is over and serves only to ensure that there will be another generation of larvae, like so many miniature cows, to graze on the rich food supply on the river bottom.

Adult caddisfly

## Post 4 What Good are They?

We have now seen a few of the animals which graze on the stationary food sources on the river bottom, but earlier we hinted that there are other animals which live on another type of food—the bacteria, algae, and other minute plant particles swept along in the current.

There are in fact two particularly amazing groups of animals which do this. One is the net-spinning caddisflies. Instead of creeping about in protective cases like the grazing caddisflies, these ones wait quietly in a burrow or other hiding place close by a silken net which traps food swept along by the current. The nets are often funnel-shaped, with the large end facing upstream and the small end leading right to the hidden caddisfly larva. Not a bad system!

The other food-trapping group is the blackflies, found exclusively in running water and marvellously adapted to conditions found there. Each blackfly larva

Some caddisfly larvae eat tiny stream-borne particles caught in the nets spun by the larvae.

Blackfly larvae lean back with the current and intercept tiny food particles with their "arms".

attaches itself by means of tiny hooks at the rear end of its body to a pad of gummy saliva which it has secreted onto a rock or plant in the stream. To feed, the larva merely leans back with the current and holds up its two fan-like arms which filter bacteria and tiny plant particles from the flowing water.

Even in winter there are active blackfly larvae in Algonquin rivers, slowly growing in the cold water. Other kinds pass the winter as eggs, and only hatch in the spring. Whatever the case, the larvae are usually full grown by late May or early June, and at that time spin silken cases in which they transform to a pupa and then to an adult blackfly. When the time comes to emerge, the pupal case fills with gas and then splits, sending the adult fly in a bubble out of the open-ended silken case, up to the surface and into the air.

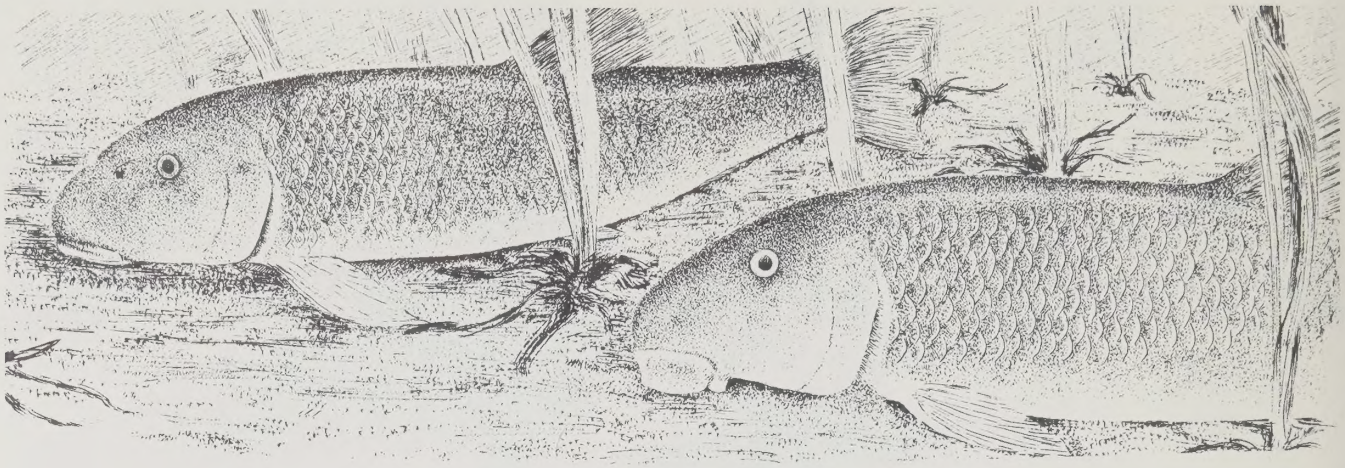
As adults, blackflies feed on nectar (chiefly that of blueberry flowers). There are over two dozen species of blackfly in Algonquin, but most of them would not be noticed very often except for one thing. The females of some species must have a meal of blood to ensure the development of their eggs, and five of them regularly bite humans to get it.

Especially at their peak in June, biting blackflies are no laughing matter. Many a tortured human has asked "What good are they? " (as well as saying other things we won't repeat).

The question is understandable of course, but it's a bit like asking what good is a carburetor. The answer, in both cases, is no good at all except as part of a system. Just as a carburetor is vital in the system of parts which make up a functioning car, blackflies too are an integral part of a system—in this case a living community. As adults, blackflies are a major food supply for swallows, flycatchers, and dragonflies, and they may be one of the most important pollinators of blueberries. As larvae, they remove huge numbers of bacteria and debris from the water. They also constitute food for fish. One study conducted right here on the Oxtongue indicated that 16% by volume of the food taken by brook trout consisted of blackfly larvae and adults.

So the next time you pick a blueberry or catch a trout, lift your hat to the blackfly—but not too long or they'll get you!

# Post 5 To Each His Own



Suckers feed on the river bottom

Including the brook trout, there are seven kinds of fish which live in this part of the Oxtongue River. the others are the sucker, the sunfish, the creek shiner, the creek chub, the perch, and lastly, the small-mouthed bass (which is not native, having been introduced by man). It is interesting to consider these seven fish and the different ways they exploit the different food resources abailable to them.

Suckers, with their downward pointing mouths, are ideally suited to sifting through bottom sand and mud for midge larvae and other organisms which are found there.

The creek shiner and the sunfish both eat algae and insects, but the sunfish prefers quieter, more weedy sections of the river than the shiner.

The perch and the creek chub both lean more heavily to animal food, including aquatic insects and crayfish. But here again, the chub is more at home in clear running water than the perch, which prefers quieter areas with more vegetation.

The brook trout and the small-mouthed bass are yet another pair of species with very similar food preferences. They tend to be separated for at least part of the year, however, because bass can tolerate warmer water than trout. When the water is warm, trout often retire to "holes" of deeper, cooler water in the river bottom, where they lie in wait for stray fish of smaller species and insects washed in from upstream.

Each of the fish species, therefore, has its own way of life in the river—competing with the others for many of the same food resources, but exploiting them in subtly different ways and places. The fact that seven different fish live in the same restricted body of water is yet another indication of the river's extraordinary richness.

Creek chub are common in Algonquin rivers.

# Post 6 Blue and White Lightning

With the Oxtongue's numerous and varied fish it is only natural that several animals live here or visit regularly to hunt them. These include the otter, the mink, and the common merganser, but none is more familiar than the kingfisher. A visit to an Algonquin stream is not complete without a glimpse of "blue and white lightning" as a kingfisher hurtles around a bend in the river, rending the air with its loud, harsh rattle.

Of all the Oxtongue fish-eaters, the kingfisher is the most closely wedded to the river. For example, it hunts by sight from perches (which are in plentiful supply overlooking the whole width of the river). Also, it dives into the water headfirst to capture its victims at or near the surface but, since the river is mostly shallow, the fish are usually forced to be where the kingfisher can catch them. Preferred fish are in the 12 to 15 cm range and, here again, the Oxtongue, with its creek shiners and creek chub, is ideal.

The kingfisher depends on the river even for its nesting place. This is a burrow, two or three metres long, excavated by the birds with their bill and feet in a vertical sand bank. The point is that without the river there would be no sand bank in which to dig. The river cuts the bank in the first place and then maintains it by eroding it away faster than vegetation can stabilize the exposed sand.

All in all, kingfishers and Algonquin rivers seem to be made for each other.

A kingfisher rises from the water with its catch.

# Post 7 A Sobering Thought

**The trap captures all the insects emerging into the air from one square metre of stream bottom.**

You are now standing at the head of Whiskey Rapids. Such rapids and riffles are very important parts of any river because it is here that air is forcibly mixed into the turbulent water and the river becomes fully charged with oxygen.

The rocky river bottoms found in rapids are also the richest of all parts of the river in terms of animal life. This is probably because such bottoms are easier to hang on to, and because they present a much greater surface area and a wider variety of current speeds and hiding places than sand, gravel, or mud bottoms. Just how rich rapids can be has been shown by several studies done here in Algonquin. Using traps which capture all the adult insects emerging from just one square metre of rapids, investigators collected in just a single season, numbers typically ranging from 15,000 to 30,000 insects. These totals were for all species combined but, in one exceptional year, one square metre yielded 55,000 blackflies alone. Of these, 71% were of the worst biting species, and even allowing for the fact that only half would be females, it still means that one square metre of rapids produced some 20,000 biting females . . . A sobering thought.

# Post 8 Another Sobering Thought

The title of this stop concerns the story of how these rapids came to be called "Whiskey Rapids".

Late one spring, around the turn of the century, a camp of log drivers a few kilometres downstream from here decided that the imminent end of their drive warranted a celebration. They all chipped in to cover the $3.85 cost of a three gallon keg of whiskey which they arranged to have left at the railroad station at the top of Canoe Lake. Two men paddled up to get the precious shipment, which they did without incident.

On the way back, however, one of the men pointed out to the other that they really deserved the first drink since they had done all the work of fetching it. One thing led to another and, by the time they reached this point, more than darkness prevented them from seeing straight. At the last moment the bowman saw the swollen spring rapids ahead but the sternman said "Ah, letsch shoot them" . . . When the men pulled themselves out of the water, the keg was gone. And although the whole camp turned out to look, the whiskey was never recovered. We have a feeling there wasn't much left to find.

# Post 9 Log Drives

The two log drivers we described at the last post were obviously hard drinkers but you can be sure they were also hard workers. They had to be.

When the first loggers entered what is now the eastern part of Algonquin back in the 1830's, and for most of our subsequent logging history, they didn't have the trucks and other equipment we use today. The only way to get the logs out was to float them down the Park rivers. This sounds easier than it was. The logs had to be laboriously hauled in booms across lakes with horse-powered winches. In rivers there were rapids and falls which had to be by-passed by diverting water through wooden chutes built around the obstructions. Dams were built to raise water levels and to provide extra surges of water downstream. In spite of all this, logs frequently jammed in rivers, and hours of hard, dangerous work were needed to undo the mess.

The last major drive in the Park was in 1945 when about 150 men worked from April to September driving logs down the Nipissing and Petawawa Rivers right across the Park for a distance of 250 km to the Ottawa. Log drives on the Oxtongue stopped long before that — before the first World War — and they only began in the early 1890's.

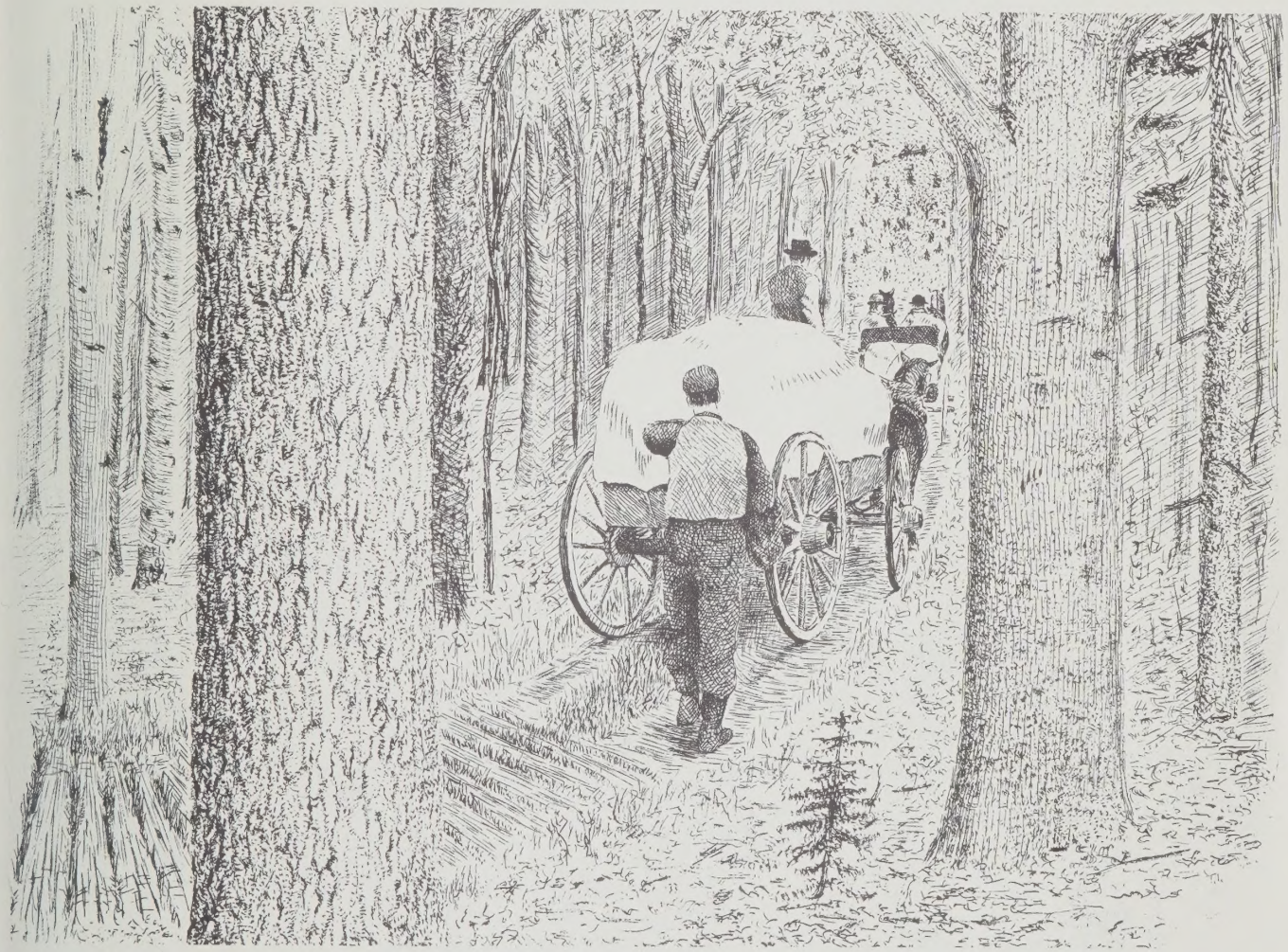
For twenty years this river carried logs out of the Park each spring, and men shouted to be heard above the sound of the rapids — a scene all but forgotten today.

Log drivers in the old days

## Post 10 The Old Tote Road

It was bad enough to float logs downstream with the current, but taking supplies upstream was even more difficult. So even in the days of the log drives, logging companies built primitive haul roads. You are now standing on the old tote road which ran 45 km from the town of Dorset (outside the Park) to the north end of Canoe Lake, crossing the Oxtongue where the dam now stands at the bottom of Tea Lake. The road saw horsedrawn wagons in summer, and sleighs in winter, for a few years. The rotting remains of buildings which you have passed since the last post may have been a "halfway house" associated with the road, or shelters for the river drivers. Gradually, however, the road fell into disuse when the railroad reached Canoe Lake in 1896.

Today, even the railroad is gone, and as you walk along the old tote road back to the parking lot it will take some imagination to think that in just 100 years we have seen the river, this track, the railroad, and now Highway 60 as roads into Algonquin.



A scene from the old tote road in the 1890's

## Post 11

We hope you have enjoyed your walk around the trail, and learning something about the ecology and history of the Oxtongue River. If you do not intend to take this guide home with you, please put it in this box so that others may use it later.

If you wish to keep the guide, please pay at the trail entrance sign if you have not already done so. Thank you.

Other Algonquin trails are listed on the back cover.

# OTHER ALGONQUIN TRAILS

This is just one of ten trails maintained in the Highway 60 region of Algonquin Provincial Park. Each is designed to introduce you to some specific aspect of the Park and each has a guide similar to this one. The nine other trails are listed below (distances are from the West Gate).

HARDWOOD LOOKOUT TRAIL (AT KM 13.8) This 0.8 km walk takes you through a typical Algonquin hardwood forest and culminates in a fine view of Smoke Lake and the surrounding maple hills. The guide offers some insight into the ecology of a hardwood forest.

MIZZY LAKE TRAIL (AT KM 15.4) This 11 km trail requires an early start and a full day to do properly. It visits nine ponds and small lakes and affords some of the best chances to see wildlife in the Parkway corridor.

PECK LAKE TRAIL (AT KM 19.2) The Peck Lake Trail is 1.9 km long and goes completely around the shoreline of Peck Lake before returning you to the parking lot. The trail guide explores the ecology of a typical Algonquin lake.

TWO RIVERS TRAIL (AT KM 31.0) The Two Rivers Trail is 2.1 km long, making an easy ascent to a pine-clad cliff overlooking the north branch of the Madawaska River. The guide examines the importance of change in the natural and present day Algonquin Forests.

HEMLOCK BLUFF TRAIL (AT KM 27.2) This loop trail, 3.5 km long through mixed hardwood and coniferous forest, leads to an impressive view of Jack Lake. The trail guide discusses the importance of Algonquin Park as a living laboratory for research in a variety of different fields.

LOOKOUT TRAIL (AT KM 39.7) This 1.9 km loop is a fairly steep and rugged trail which rewards the hiker with a magnificent view of several hundred square kilometres of Algonquin. The trail guide discusses the geology of the Park.

BOOTH'S ROCK TRAIL (SOUTH FROM KM 40.3) This 5.1 km loop trail starts one km south of the Rock Lake Campground office (8 km south of Highway 60). The trail skirts two small lakes, climbs to a spectacular lookout, and returns via the ruins of an old estate and an abandoned railroad. The trail guide explores the theme of man's impact on Algonquin.

SPRUCE BOG BOARDWALK (AT KM 42.5) This unusual 1.5 km loop takes you through the best bog situation in the Highway 60 area. It is provided with several extensive boardwalk sections and gives the Algonquin visitor an excellent close-up look at the flora and fauna of two typical northern spruce bogs. The trail guide relates the history and ecology of the bogs.

BEAVER POND TRAIL (AT KM 45.2) A winding trail of 2.0 km through rugged hilly country yields close-up views of two beaver ponds, including a fine, bird's eye view from a rocky bluff. The trail guide provides an introduction to Algonquin's fascinating beaver pond ecology.

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